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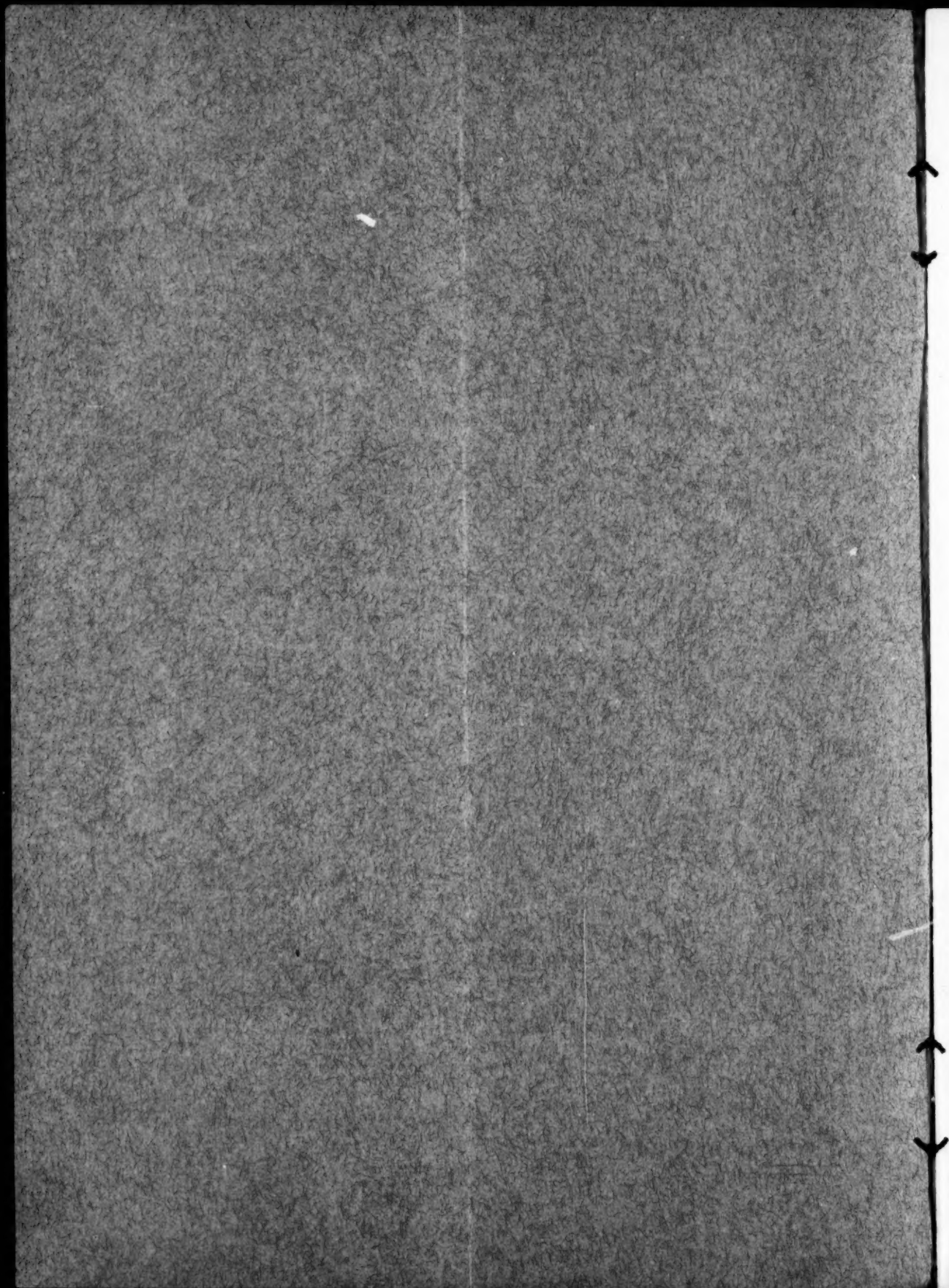
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"The Physical Reconditioning Program of the Army"

CECIL W. MORGAN, Ph.D.

Chief, Physical Reconditioning Branch, Physical Medicine Consultants Division, Office of The Surgeon General,
Department of the Army, and

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Chief, Physical Medicine Consultants Division, Office of the Surgeon General, Department of the Army

Never before in the history of medicine has interest in and emphasis on the management of convalescence received such widespread attention as during and following World War II. On the part of the medical profession an acute awareness appeared "that medicine and surgery in their accustomed roles stop short of the final goal in their almost complete preoccupation with getting the patient over the most serious period of his disease or injury."¹ The extensive programs in convalescent reconditioning developed by the armed services have been accorded universal recognition. Complete rehabilitation of the sick and injured is being more and more accepted as a challenge by the entire medical profession. No longer does convalescence consist of confinement to bed until the patient feels able to again slowly acclimate himself to his environment and his occupation.

Physical medicine has three elemental components: Physical therapy, which is for the most part definitive and diagnostic in nature; occupational therapy, which offers a combination of definitive physical and psychological type of medical treatment; and, thirdly physical reconditioning which is generally of a non-definitive nature and is of great value in shortening the period of convalescence. This discussion is concerned primarily with only one of these three components, namely, physical reconditioning.

Physical Reconditioning was organized at the beginning of the war in Army hospitals as a section of the Reconditioning Service, and physical therapy was administratively under the Orthopedic Section. Many medical officers were never sufficiently aware of the value of this program.

The Reconditioning Service included Physical Reconditioning, Educational Reconditioning and Occupational Therapy. The two latter activities grew to enormous proportions and acquired so many extraneous and non-medical ramifications that its strictly medical and objective therapeutic approach became

somewhat submerged in its copious development.

The obvious reason for widespread empiricism in Reconditioning is that the pressure of war did not allow the opportunity for carefully controlled scientific evaluations. Keys² makes an accurate appraisal of the situation in pointing out that perhaps the chief function of much of the wartime efforts was to clear the way for the real fact finding to come. Thorndike³ recognizes this fact also, as illustrated by his statement "Until such time as definitive end results are published, it is impossible to fully evaluate the Army Reconditioning Program." It is feared that few, if any, additional and scientific conclusions will ever evolve from the wartime program, as the exigencies of war prevented such studies for the most part, with a few notable exceptions. Despite these unpreventable deficiencies in lucid scientific data, there evolved a widespread and enthusiastic recognition of the dividends both in human values and economy of manpower which resulted. Recovery from disease or injury by definitive treatment and bed rest alone is, as will be shown subsequently, becoming rapidly outmoded.

Rehabilitation, according to the definition of the National Council on Rehabilitation, is "the restoring of the handicapped to the fullest physical, mental, social, vocational and economic usefulness of which they are capable."⁴

The major fields in the process of rehabilitation involves the medical, social and the vocational. Physical educators should make their contribution within the medical field, along with the physical therapists, occupational therapists, the doctor and the nurse. This field comprises all those services which are directed toward the restoration of the disabled individual to the maximum physical competence and mental health.

Out of the wartime Reconditioning Service, the Convalescent Services Section was evolved⁴ which includes Educational Reconditioning,

Special Services and other non-specific morale and recreational activities.

Concomitantly, physical therapy was removed from the Orthopedic Section and with occupational therapy and physical reconditioning, was established as a section of the Physical Medicine Service.⁶ This reorganization was based on the following premises:

- (1) Because of its proven contributions in accelerating convalescence, physical reconditioning has earned a definite importance in the medical armamentarium.

- (2) It is a natural supplement to physical therapy and occupational therapy in preparing, in the shortest possible time, a physically fit soldier for return to full duty or for discharge, in the best condition it is possible for him to attain.

- (3) The greatest value from physical reconditioning can be obtained by prescribed physical exercise on an individual basis.

This does not preclude the employment of group therapy for similar types of disabilities.

The new organization of Physical Medicine on the one hand, and Convalescent Services on the other hand, is designed to enhance the benefits to the patient. Close liaison between the Physical Medicine Service and the Convalescent Services is absolutely mandatory in order that the patient **AS A WHOLE** may be fully benefitted.

The desire to hasten convalescence has taken three forms in medicine. Much excellent work has been done regarding the undesirable effects of bed rest. This is the negative approach.

The advocates of early ambulation have approached the problem from the positive viewpoint and the literature contains many studies which show conclusively that this principle has great value in shortening convalescence. Physical reconditioning goes a step further and may be considered as implementing the findings of the first two approaches.

Blain,⁷ has stated that "the tradition of prolonged bed rest is not easily overcome, and some will cling tenaciously to the needless rituals which comprise 'postoperative care' in so many patients." Briefly, for the purpose of orientation, a few of the conclusions regarding the undesirable effects of bed rest may be cited. Dock⁸ lists the complications which are attributable to bed rest and concludes: "In every case the physician should treat bed

rest with as much respect as he does digitalis, morphine, or other useful but two-edged agents. Given when necessary for the patient's safety and comfort, it should be modified (toward a normal way of life) as quickly as possible."

In a symposium on bed rest⁹ Ghormley in orthopedic cases; Menninger in neuropsychiatric cases; Harrison in cardio-vascular disease; Eastman in obstetrics; and many others, have all concluded that the therapeutic value of bed rest is valuable where indicated, but should be used only when and as long as is definitely needed.

Early ambulation will obviously serve to promote convalescence by obviating, for the most part, the undesirable effects of bed rest. Leithauser¹⁰ has recorded excellent studies confirming the value of early ambulation.

If early ambulation does achieve more or less universal recognition and utilization, there still exists the need for a more dynamic handling of convalescence. Deconditioning, which is defined physiologically as "simply loss of physical fitness"¹¹ must be minimized, and physical reconditioning—prevention of deconditioning or the regaining of fitness after it has been lost—must be carried out intelligently and scientifically.

McCloy¹² has shown that ambulation does not prevent deconditioning. "It has been found by experimentation in the physiological laboratory that an individual capable of enduring 188,000 kilogram-meters of work in a given time without rest, after two weeks of inactivity, in which time he is walking around but doing no other exercise, will retrogress until he has the ability to do only 8,000 kilogram-meters of work in that time."

The combination of early ambulation and dynamic physical reconditioning, which employs a wide variety of carefully selected physical activities on an individualized basis under medical supervision appears to have far-reaching significance in the hastening of convalescence.

In establishing the value of physical reconditioning during convalescence the work of Starr, Mayock and Battles¹³ is worthy of note. Their work "had the results of altering the routine handling of patients with hernia in the hospital of the University of Pennsylvania."

Luck¹⁴ notes the importance of physical reconditioning in the sequence of orthopedic rehabilitation.

These studies regarding the value of physical reconditioning in various categories are not numerous, but are extensive enough to soundly establish the feasibility of its use.

The interest of psychiatrists in physical methods of treatment perhaps antedates that of any other therapy, particularly the use of hydrotherapy. Grinker¹⁵ has indicated the modern clinical value of physical reconditioning in neuropsychiatry.

Hellebrandt¹⁶ has pointed out that with the broad application of the principles and practices of physical education to the treatment of medical and surgical cases during the war, interest in the purely biological effects of exercise was stimulated. Programs of physical education prior to the war were designed almost exclusively to meet psychological, sociological and recreational needs.

Physical education must now assume the responsibility of establishing training in this new field. Snow,¹⁷ in discussing the relationship of physical education and medicine, wrote in 1942 "that adjustments in physical education curricula and converging points of view will bring physical education in the therapeutic field to a point of medical application not yet achieved."

The function of physical education in the medical field has been delineated by Elkins in his statement that the physical educator is not now trained to work with the ill or injured until the patient has reached a definite state of recovery which should be understood by the physician.¹⁸

It is recognized that this is true. However, with additional training it is possible to prepare qualified physical education personnel to assume their role in the convalescence of patients through physical activities. Further, the training of the physical educator in motivating and stimulating individuals to activity is extremely valuable under the guidance of the medical officer.

Gwynn¹⁹ has stated that physicians should have both training in medicine and physical education. This combination is common in England but rare, indeed, in this country. Therefore, the best solution is to make available to the doctor the specialized skills and knowledges of the specially trained physical

educator in order to carry out this phase of medical care. But the physical educator must have supplementary training in such basic subjects as anatomy, pathology, kinesiology and physiology as applied to the sick and injured.

Work with patients requires a somewhat different approach than with the healthy individuals. It is therefore important that training for this specialized group be done under medical supervision. Only in this way can the physical educator make his proper contribution. The experience in the Army has proved that only through this approach can progress be achieved.

There is a belief on the part of some genuinely interested medical men that physical reconditioning personnel should be first trained as physical therapists and then in the activities and procedures of physical reconditioning. It is essential that physical reconditioning retain its identity as a separate and distinct therapy.

In line with broad aims as expressed by the National Council on Rehabilitation, the specific objectives of the Army's peacetime physical reconditioning program are:²⁰

- (1) To allay and prevent deconditioning
- (2) To accelerate physical recovery
- (3) To restore a patient's physical condition to a level that will fit him for return to full duty or for discharge to civilian life.
- (4) To contribute to psychological readjustment and socialization through enjoyable and beneficial individual and group exercises.

The general types of physical activity contribution to physical fitness are active, supportive, passive and postural.

Physical reconditioning is concerned primarily with the active type of exercise. In this category are included activities to develop strength, endurance, skill and speed of movement. With the bed patient the emphasis is upon general conditioning and resistive exercise to prevent deconditioning and to maintain general body fitness. With early ambulant patients, activities are designed to increase muscular strength and endurance. In the advanced stages of convalescence vigorous use of the large muscles of the trunk and legs for the development of vigor, cardiovascular and respiratory endurance, supplement the earlier activities.

Therapeutic exercise on the other hand is concerned directly with the recovery of the injured part, while physical reconditioning is concerned with the maintenance and development of physical fitness of the whole body.

What, then, are the general principles upon which physical reconditioning may be based?

(1) First in importance is medical supervision. Coulter²¹ has said "The whole subject of rehabilitation is primarily a medical problem." In the Army's Physical Medicine, physical reconditioning is an intrinsic part of the Service. It is obvious, therefore, that medical supervision of the program will be exercised. The need for physicians and educators working in close cooperation in the rehabilitation process has been stressed by Krusen.²²

(2) Probably second in importance as a principle is that of complete orientation of the patient to his disability and to the potentialities of physical reconditioning in his recovery. Full cooperation of the patient must be enlisted. He must be inspired to work for his own recovery. Watson-Jones remarks "that malingerers are made, not born."²³ This emphasizes the need for competent trained personnel. Intelligent understanding is necessary to establish and maintain high morale for participation in physical reconditioning. The patient should be made to feel that his prescription of physical activity is a much a part of his treatment as surgery or medicine.

(3) Constant but gradual progression is essential. Physical reconditioning must be begun at the earliest possible moment with suitable exercises and increased gradually and progressively in relation to the patients tolerance for such activities. The conservation and improvement of muscle function is necessary to recovery. A sudden or marked increase in the amount of exercise may be dangerous for convalescent patients and must be avoided as a general rule only. "In the advanced reconditioning sections, sports are an excellent form of reconditioning."²⁴

(4) Individualization of the program. Marked individual differences exist in the physical conditioning of convalescents; therefore, it is imperative that the program be individualized. Some patients have been in very good condition before their illness or injury while others were not. Some will have been injured severely; others will have relatively minor injuries. All such types may be located in the same ward

and may have to be exercised at the same time. Because of the varying needs of each patient, activities vary in accordance with the prescription of the medical officer. The tendency to exercise all patients in the same manner must be guarded against.

(5) Integration of all rehabilitation activities. The ward officer must be made aware of ALL of the resources available for dynamic convalescent care. In the Physical Medicine Service all physical phases of the program are coordinated under the Chief of Physical Medicine. The proper integration and coordination of all of the procedures of physical and occupational therapy with physical reconditioning is necessary for maximum benefit to the patient.

In the medical services of the armed forces and the Veterans Administration the continuing necessity for the intelligent management of convalescence is conceded and is being enthusiastically supported by the leaders of these services. Physical reconditioning is one of the main agents by which this will be accomplished.

In civilian medical practice the need as pointed out by Snow¹⁷ and Gwynn¹⁹ is rapidly gaining momentum. Rehabilitation centers, which have as one of their most important activities physical reconditioning, have been established in several of the larger cities and in some States. Some of the leading medical schools and clinical centers are taking steps to provide rehabilitation facilities both in teaching and in clinical application.

The subject of physical reconditioning is especially provocative to those interested in research. One of the most gratifying tributes which has been paid this new field is the attention which outstanding physiologists have given to the subject of convalescence and rehabilitation.

On delving into the literature, one is stimulated greatly by these outstanding scientists' viewpoints. A veritable wealth of avenues and approaches for investigative work have been opened.

In summary, the following conclusions are evident:

(1) In physical reconditioning, the medical profession has an additional potent agent with which to combat the evil effects of inactivity and physical deterioration of traditional bed rest in convalescence.

(2) The facts which have been learned concerning the undesirable effects of bed rest in convalescence and the advantages of early ambulation facilitate and indicate the broad but scientific utilization of physical reconditioning during convalescence.

(3) Smaller percentages of complications, relapses and recurrences during convalescence are encountered if a regimen of activity of prescribed physical exercises are used during convalescence.

(4) The institution of this dynamic concept of physical recovery in the convalescent phase of medical care will result in conservation of economic, social and human values which will rank as one of the outstanding achievements of the healing art.

(5) Physical reconditioning is a definite entity of physical medicine and for maximum effectiveness must be under the supervision of a physician trained in physical medicine.

(6) The physical education profession must realize that the application of physical exercise in the convalescent phase of medical care should be accepted as a new and fertile field of endeavor for physical educators.

(7) In research and investigation the field of convalescence presents many interesting and challenging problems which should be attacked jointly by physicians, physiologists and the physical educators.

In the therapeutic armamentarium, physical reconditioning is a new and potent agent by which more rapid and more complete recovery from disease and injury may be accomplished.

BIBLIOGRAPHY

1. Report of the Branch Committee on Physical Medicine, April 1944, p. 50.
2. Keys, Ancel, PhD. "Deconditioning and Reconditioning in Convalescence". *The Surgical Clinics of North America*, April 1945, New York Number.
3. Thorndike, Augustus, Col., M. C., AUS. "Rehabilitation of the Surgical Patient in Army Hospitals in World War II", *American Journal of Surgery*, Sept. 1946.
4. "Processes of Rehabilitation", *National Council on Rehabilitation Report*, 1946, New York.
5. War Department Memorandum 40-590-6, 3 December 1946. "Establishment of Convalescent Services Division in General Hospitals."
6. War Department Circular No. 349, 28 November 1946.
7. Blain, Alexander W., *Journal International College of Surgeons*, editorial, Vol. IX No. 5, pp. 568-570, Sept-Oct 1946.
8. Dock, William, MD, "The Undesirable Effects of Bed Rest". *The Surgical Clinics of North America*, April 1945, New York Number.
9. Ghormley, Ralph K: *JAMA*, 125:1085-1087 (Aug 19) 1944. Menninger, Karl, *ibid*: 1087-1090. Harrison, T. R., *ibid*: 1075-1077; Eastman, H. J., *ibid*: 1077-1079.
10. Leithauser, D. J.: "Confinement to Bed for Only 24 hours After Operation". *Arch. Surgery*, 47:203, 1943.
11. Keys, Ancel, PhD. "Deconditioning and Reconditioning in Convalescence", *The Surgical Clinics of North America*, April 1945, New York Number.
12. Extracts from address by Dr. C. H. McCloy, Research Professor of Physical Education, University of Iowa; and Consultant in Physical Reconditioning, SGO, delivered at a conference on Reconditioning at Schick General Hospital, Clinton, Iowa, 22 March 1944.
13. Starr, Mayock, Battles: "Convalescence from Surgical Procedures", *Am. J. M. SC* 210:713-725, May 1946.
14. Luck, J. Vernon, Major, MC AAF. "Orthopedic Rehabilitation", *The Air Surgeon's Bulletin*, Vol. 2, No. 12, Dec. 1945, pp 431-433.
15. Grinker, Roy R., Lt. Col., MCAAF. "Psychiatric Disorders in Combat Overseas and in Returnees", *The Medical Clinics of North America*, Vol. 29, No. 3, May 1945, pp 729-739.
16. Hellebrandt, F. A., "Recent Advances in Methods of Hastening Convalescence Through Exercise". *Southern Medical Journal*, vol. 39, No. 5, May 1946.
17. Snow, W. B., "Rehabilitation in Civilian Medical Practice". *Medical Clinics of North America*, May 1945. W. B. Saunders Co., Philadelphia and London.
18. Elkins, Earl C., editorial "The Use of the Person Trained in Physical Education in Physical Medicine, *Archives of Physical Medicine*, December 1945, p 772.

19. Gwynn, Henry B., Lt. Col., MC AUS. "Reconditioning in Civilian Hospitals", delivered before 16th Annual Scientific Assembly of the Medical Society of the District of Columbia, 7 Oct 1944.

20. War Department Technical Manual TM 8-292. "Physical Reconditioning", December 1944.

21. Coulter, J. S., *Proceedings of the Staff Meetings of the Mayo Clinic*. 18:320-326 (Sept 8) and 18:344-352 (Sept 22) 1943.

22. Krusen, F. H., *Proceedings of the Staff Meetings of the Mayo Clinic*. 18:320-326 (Sept 8) and 18:344-352 (Sept 22) 1943.

23. Watson-Jones, R. "Rehabilitation in the Royal Air Force". *British M. J.* 1:403-407 (Mar 28) 1942.

24. Mueller, Vernetta A., Jr., Major, MC, and T/Sgt Silverman, Lewis K., "Experiment in Physical Reconditioning at Camp Crowder". *War Medicine*. June 1947, vol. 7, No. 6. pp. 365-370.

Practical Aims for Corrective Therapy

KJELL J. PETERSON

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I have often referred to the Corrective Physical Rehabilitation or as you now call it, the Corrective Therapy Department, as a wedge inserted into the field of medical rehabilitation. This wedge was inserted between two established departments—one, the physical therapy department, and the other the special services department, which although not connected with the medical rehabilitation, was at that time very active in treatment of some of our patients in the hospitals. A lot of selling had to be done to convince the two departments that we were not taking any job or glory away from them, but that our main purpose was to supplement their work in helping the patient to become an independent, useful citizen.

It was specified that the corrective therapist should at all times work in close cooperation with the Physical therapist, who is responsible for specific therapeutic exercises, muscle testing, etc., involving disabilities resulting from injury, infection or disease. It was explained that a rigid demarcation of the respective fields of activity could not be achieved and therefore it was suggested that a reasonable latitude in this direction should be provided by the Chief of Physical Medicine.

On the other hand it was specifically outlined that the corrective therapist would be responsible for all individual treatments and the Special Service in charge of group activities.

There were many hurdles to straddle in those days, and I do not have to remind you of them, because I am quite aware that each one of you knows what I am talking about. You,

yourself, sold the corrective therapy department on the hospital level. You convinced the medical staff that you were there to do a job and that you were willing to do everything possible to help the patient on his road to recovery.

The immediate problem in early 1946 was the care of paraplegia patients. We had at that particular time over 2,500 veterans with spinal cord injuries in our veterans' hospitals, and the need for treatment was acute. It was necessary to compose specific directives and technical bulletins outlining the particular job that could be done by the corrective therapist. A list of activities, 72 in number, was sent to the various hospitals. This list was called "My Own Score." To supplement this, the pamphlet, "What's My Score" was published and distributed to all patients and personnel at the hospitals. The main purpose of this pamphlet is to outline the various activities that are necessary, for the paraplegia patient, with suggestions as to how to keep score, and illustrations to give him one method whereby he could perform the activity.

The illustrations in this pamphlet indicate only one method whereby a patient can perform his specific activity. Too often I have been asked why we didn't specify more than one method to perform an activity. It would be impossible to compose a list of all methods to be used. Actually, it was tried at one time, and 24 different methods were outlined for getting from wheelchair to standing position. One of my patients saw this list and said: "Some of these methods are very good.

However, I can't use any of them. I am using my own method which is better for my specific disability." In other words, I believe there are an unlimited number of methods that can be used, and it will be up to the patient, with your help, to analyze which one will be best for him.

At several hospitals I observed that this pamphlet and this method of scoring was used, and at one specific hospital I believe that they had a good idea for selling the various activities. When the paraplegia patients received an automobile from the Government, it was found that too many of them liked to skip their exercises in order to learn how to drive an automobile by hand control. In order that the patient would not jeopardize his physical rehabilitation, it was compulsory for him, at this hospital, to be able to perform a certain percentage of these 72 activities before he was allowed to take lessons in driving. This served as a good incentive, and the results were favorable.

In early 1947 you had done such an outstanding job for the paraplegia patients that most of their physical rehabilitation was well organized and good results were obtained. Consequently, you had an opportunity to observe other problems that were facing your particular work, and undoubtedly you are now mostly engaged in treatment of the hemiplegia patients and neuropsychiatric patients. The treatment of the hemiplegia patient, although he is usually able to walk, must teach him to perform the daily activities essential for daily life. Among those patients, you, of course, find that their hand activities are most important. A man must be able to tie his tie and lace his shoelaces and dress himself with one hand. Undoubtedly the hemiplegia patients will be a challenge to you, because we will receive many such patients into the V. A. hospitals from now on. Unfortunately, there is very little that we can do for the paralyzed arm if the condition has existed for some time. To keep the shoulder, elbow, and wrist joints fairly limber is of importance. Of course, passive exercises can be given for those joint movements, but I believe that the pulley exercises, which we introduced a few years ago, have some value. Those pulley exercises will never take the place of passive exercises. The advantage of pulley exercises, in certain cases, is that the patient can perform the exercise by himself, providing he has received proper instructions. Too often

have I seen that the ropes have not been properly adjusted, and consequently the results from this type of exercise have not been too valuable. The adjuster that you apply to the rope should be used so that a minimum amount of compensation is possible. By adjusting the rope and attachments, you can accomplish good exercises for the shoulder, elbow, and ankle, with one exception perhaps, and that is the abduction at the shoulder joint. It is almost impossible to stabilize the scapula. Pulley exercises are also used for some of our amputee cases where we have limitations of joint movements at the hip or at the knee.

When the Army Air Force Convalescent Hospitals were established there was an immediate request for equipment in order to accomplish a complete physical rehabilitation job. Undoubtedly you are familiar with the procedures followed in the Army. Requisitions were sent out—but unfortunately most of our convalescent hospitals did not receive the equipment until the end of the war and we had to get along with whatever we were able to construct ourselves. Basically, you do not need too much equipment in your job in Veterans Hospitals. Once I was asked what type of equipment is necessary for treatment of paraplegic patients. My answer was: a mat, and parallel bars. The rest of the equipment we have. A paraplegic patient has to get along under ordinary circumstances. He has to walk up and down steps. He has to get in and out of bed. He has to be able to get from his wheelchair to an ordinary chair or from a wheelchair to a standing position. In other words, he has to get along with the same type of furniture and obstacles as you and I. Therefore, all you have to do is to attempt to fit him into ordinary life, by using those things under ordinary circumstances. Special equipment was constructed for flexion and extension of the knee joint for paraplegic patients. The construction of such apparatus was quite complicated, but the "Inventor" definitely thought it would have some specific value. Personally, I cannot see any specific value in such apparatus for paraplegic patients. If there is limitation of motion at the knee joint, I believe it is better to ask the patient to try to put on his socks or braces. In doing so, he has to flex his hip and knee joint sufficiently to reach his foot and ankle.

Of course, there are special exercises pre-

scribed for paraplegic patients. At one time we were doing nothing but "Push-up" exercises for those patients in order to prepare them for crutch walking. At one of my visits to a hospital I asked a paraplegic patient what he could do. He told me that he was able to do 64 "Push-ups." When asked what else he could do, he said: "Of course, I can get out of bed into the wheelchair, providing I have a 'monkey bar' and the nurse or the attendant will hold my legs." This is not the type of physical rehabilitation that we want. I would like to see more activities and less exercises. To give you an illustration, I met a paraplegic patient one time who had received four months of stretching exercises for his back but who was unable to touch his knees while sitting in bed. We changed his daily routine of exercises to a routine of activities. We simply asked him to put on his socks. After struggling for several days to perfect this activity he finally was able to do it. Then came the braces and so on. After four months of work, he was able to sit in his bed, lean forward, and place his wrists at his toes with straight knees. He had not received one exercise to lengthen the back muscles. Instead, he had received specific activities for his disability. None of us are too happy about calisthenic exercises. Neither is the patient, so my advice to you is to get away from the ordinary routine of exercises as much as possible, and introduce a functional activity instead.

There is an immediate need for physical rehabilitation in the V. A. Hospitals for chronic and so-called incurable cases. When I visited some of our soldiers' homes, I saw the field for your type of work to a great extent. At present, they are very dependent upon the general staff of the hospital as most of the patients are unable to dress themselves and take care of their daily needs. This places a tremendous burden upon nurses and the general hospital staff. You can do a great service by teaching these men how to take care of themselves and how to lead a life of independence, although few will ever leave the hospital. Some of you have already done this type of work and been very successful. Undoubtedly, there is a general conception among the patients that rehabilitation work might force them out of the hospital and a good home, but I do not think your rehabilitation will do too much to discharge them from the hospital as dependent patients.

Civilian hospitals are very much interested in this type of work because of the tremendous burden such patients are upon the hospital staff and also because of the pressure from relatives and friends demanding that something ought to be done for the patient. I have had an opportunity to visit some of our hospitals in New York City where we have chronic and so-called incurable cases. The Board of Directors of the hospitals are very much interested in this type of rehabilitation for the patients as it will be a tremendous asset both from a financial and a social standpoint. They are not too concerned about getting the patients out of the hospitals as useful citizens, but instead they are concerned about lessening the burden upon the general staff by making patients more independent. This type of work and the result therefrom greatly benefits not only the patient, but also his relatives and friends.

I would like to say a few words about the use of common sense in treatment of severely disabled patients. You are familiar with the demonstrations presented at certain intervals in the hospitals or at civilian institutes, where patients are doing such acrobatic stunts as getting up from the floor by using only crutches, or getting up from a chair to a standing position with the chair placed in the middle of the floor. Such achievements are well appreciated by the general public but to me they are not too practical and I doubt very much if a paraplegia patient would use such a method. Personally, I would use any solid object such as a door, solid table or a bed post in order to get off the floor to a standing position or to get from a wheel chair to a standing position.

Crutch walking is important to paraplegia patients, but it is sometimes overdone. I believe that a paraplegia patient with a low dorsal or even a high lumbar injury will not use his crutches when in his home or at work. He will probably be confined mostly to his wheel chair and use crutch walking only when it is absolutely necessary. Crutch walking is a very strenuous activity for paraplegia patients. If you do not believe it, I would recommend that you put some braces on your legs and try to move forward on crutches without using your lower extremities. The often suggested "swing-through" gait is, of course, the fastest means of getting ahead on braces and crutches, but I believe it is a most dangerous method for the average paraplegia patient and I doubt very much if he would use that if he were all alone

and had to depend upon himself completely. The "swing-to" gait is a safe method of moving ahead and will probably be used by the majority of paraplegia patients. Endurance should be practiced so that the patient will not get too tired after walking the certain distance necessary for his daily life.

There is always a **danger of injury** in treatment of paraplegia patients and an injury of any type may set him back for several weeks. Since it is better to be safe than sorry it is advisable to suggest that the patient should wear his braces while practicing even the simplest activities. The atrophy is not only affecting the muscles, but also the bone tissue and consequently the least amount of strain and stress upon the bone tissue may perhaps cause a **fracture** and a fracture of the bone will undoubtedly set the patient back at least six months. **Too much mat exercises** may cause nasty decubitus ulcers and again halt the patient upon his road to recovery.

There is definitely something lacking in the rehabilitation of our severely disabled veterans. Since I resigned from my position in Washington I have been able to observe the problems involved, and I believe that there is a missing **"link"** between the medical rehabilitation and the actual social adjustment of the patient. I would like to give you an illustration of what I am referring to. Some time ago I met a disabled veteran at the Institute For The Crippled and Disabled in New York City. He had received quite a lot of medical rehabilitation in Army and V. A. Hospitals. His own physician had informed him, after discharge from the Veterans Hospital, that he would not be able to go to work again and consequently the man was quite disturbed about this discouraging statement. He had heard about the Institute and came down to find out what could be done for him. His spinal cord had been partially severed at the D-10 level, causing a partial paralysis of his lower extremities. He had almost full use of his right leg and his left leg had limitations of motion at the ankle and knee joint. I tested him on the 72 activities outlined in, "What's My Score," and found, to my surprise, that this man had practically no functional limitations and was able to perform all the 72 activities specified. When I informed the patient about his ability to get around he told me that his problem was, perhaps, not of a physical nature. He had been employed by a company in New York City but hesitated to

go back because of his disability. Before he entered the service he had been extremely active with his fellow workers in the office, and he was actually afraid to face his old friends again. I talked to the Personnel Department of the company, and a plan was outlined whereby he could resume his service for the company with special privileges, such as coming in late to the office in the morning and leaving early. This was done, of course, in order to avoid the traffic congestions at 9 in the morning and 5 at night. I met this man six months later and found him to be happy at his job, well adjusted to circumstances, and eager to go ahead. When I saw him again only a few weeks ago, he had some specific news for me. He told me that he was completely readjusted to social life and that he was on the job from 9 to 5. Although he suffers from severe pains in his legs, he is now convinced that he has overcome his disability. Unfortunately, this is not a typical story. We have many men severely disabled, who, at the same time that they are discharged from the hospitals, are unable to place themselves in our social life. The medical rehabilitation service in V. A. Hospitals does everything to help the patients get back to a life of independence but it seems to me there is a missing **"link"** between our service and the vocational readjustment. The ultimate goal for a **patient in his rehabilitation, in my estimation, is a job.** I do not care how small the job is or how much financial benefit the man will obtain from it; the most important thing is that he will have something to do when he gets out of the hospital. We encourage the man to believe that society is ready to accept him and we help him overcome his disabilities. Undoubtedly the patient is quite enthused about what is in store for him until he faces society when discharged from the hospital. Too many of our paraplegic patients have re-entered the hospital. They seem to like the idea of staying in the hospital and you cannot blame them. They do receive a lot of attention and a lot of service from everybody. What the solution to this problem is, I do not know but I certainly hope that the vocational and social adjustment problem will be improved. I have talked to some of the men who are members of the Paralyzed Veterans Association, and I have observed their work for quite a long time. Undoubtedly they are doing good for themselves and receive a lot of publicity. Personally, I would like to see such an organization open

to all types of patients. After all, we have other types of disabilities in our hospitals, such as, cardiac cases, tuberculosis cases, arthritics and others.

In New York City we have, as you know, two places where civilian rehabilitation is now at work. One is located at Bellevue Hospital and the other at the New York School of Medicine, Rehabilitation Center, at 38th Street, New York City. At Bellevue, the patients are transferred from the Ward to the Rehabilitation Ward, where they are treated by trained personnel. The situation is ideal—maybe sometimes too ideal. It may be that the patients will receive a little too much attention, and perhaps their willingness to leave the hospital in order to return to social life will not be too great. At the 38th Street Rehabilitation Center, there are, both in and out patients receiving treatment for their various disabilities. They are paying for their treatment, and, consequently, they are concerned about getting the most out of what is being offered at the Center. It is now planned to have a functional

therapy department at this Center, where the patient can actually practice the specific activity, or activities, necessary to his or her living a life of independence. Consequently, it is planned not to place too much stress upon the exercises, and, instead, have the patient practice the daily activities essential for his normal life.

In closing I would like to state that your job is not a job that will decrease as years go by. As I see it, there is a great need for your type of work in both GM & S and neuropsychiatric hospitals. When you were selected for this job your educational background was considered, but the most important thing was your interest and ability to get along with patients. None of us can help the patient unless we are able to sell ourselves. Unfortunately, many times an attempt was made to sell the treatment before the therapist was able to sell himself. The success of your rehabilitation program will depend on your ability and your interest in fulfilling the assignment which you have before you.

(Abstract)

Corrective Physical Rehabilitation for Neuropsychiatric Patients

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Describing the program of corrective physical rehabilitation for neuropsychiatric patients in operation in Veterans Administration Hospitals, the author emphasizes newer concepts underlying such a program which recognize the close relationship of physical rehabilitation to psychiatry, psychology and social rehabilitation. Appreciation of these relationships makes it possible at this time for physical medicine to make a significant contribution to modern psychiatric practice in diagnosis as well as treatment. For the different diagnostic categories the author distinguishes the problems and objectives of exercise as an adjunct to the total psychotherapeutic regime. Exercise featuring play is suited to psychoneurotics in whom the deeper involvement is due to repression from consciousness of powerful emotional charges

which are usually attached to infantile and early childhood developments. It is well known that the psychoneurotic patient may find distinctive release of anxiety tension through gross physical expression in play. For the schizophrenic group on the other hand, reality is the crux of the therapeutic problem. The prescription of exercise aims at the diversion of interest from self-preoccupation to external objects and at repression of conflicts. These patients require a highly individualized program. For negativistic types of patients in various psychiatric categories including catatonics, simple phylogenetic activities such as swimming, creeping, pushing, climbing, pulling, lifting and throwing, may provide the only available initial approach. Some far regressed patients are able to follow slow calisthenics if they are pre-

sented in straight-line movements and are simplified by a touch-objective principle. For hyperactive patients of the manic-depressive group the aim is to discharge energy into constructive social channels and promote feelings of well-being and release through expansive big muscle activity. Fast exercises such as badminton, tennis and dancing, effective as initial activities, are to be followed by such activities as volley-ball basketball and other group activities when the patient has become able to accept group control as well as group stimulation. Although socially stimulative exercises are applicable to all types they are especially indicated for schizoid reaction types. They are most effective when presented in a manner whereby the patient may advance from individual to group interest.

(Reprint)

Sports for the Blind

Too often many of us are likely to feel that the blind are hopelessly handicapped. This is not true. The person who has lost his sight can, with the proper training, become self-dependent and pursue many of the same things that his more fortunate fellow beings with sight enjoy. This is especially true in the field of sports.

At one large naval hospital in the East several blind navy veterans participated in a wide variety of sports as part of their rehabilitation. The army hospitals which administered to the army blind likewise had a well-rounded program of athletics for their patients.

One of the sports adapted to our blind veterans and which can be enjoyed by all blind persons is archery. A sheet of tin, four feet by three feet, is suspended in a metal frame which allows it to swing freely. This is the target. A piece of cord is attached to the metal frame and extends to the archer's position about forty feet away. On this cord, about two feet from the frame, is attached a metal bolt. The instructor, standing beside the archer, pulling the cord towards him and then slackening it, causes the metal bolt to strike against the target creating a sound which aids the archer in locating the target. The in-

The author describes the physical medicine program now in operation in the VA for prescribing individualized corrective exercise in the treatment of acutely disturbed neuropsychiatric patients. In the author's experience these patients when engaged in activities suited to their level of interest and capacity are not usually dangerous. The VA program provides for such factors as the activation and maintenance of interest, the study of skill interests, instruction, and the diversification and progression of activities. In the field of diagnosis physical exercises are aiding in the establishment of control situations in which data as to what the patient actually does is used to supplement verbal performance.

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structor lines the archer up with the target who, guided by the sound of the bolt striking against the target, releases the arrow. When the arrow strikes the target the sound informs the archer that his marksmanship has scored a bullseye.

Punching the bag is another sport that the blind take part in quite effectively. The individual learns to coordinate his punches with the movement of the bag by the sound of the bag. Weight lifting is still another athletic activity in which the blind can participate to good advantage.

Wrestling is a sport in which the blind have learned to excel. In Philadelphia a school for the blind has one of the best wrestling teams in that part of the country, and repeatedly wins victories over teams who are not handicapped by sightlessness. One blind student at the University of Pennsylvania became proficient enough in wrestling to captain the wrestling team of that University. During World War II this same individual aided the morale and rehabilitation of blind war veterans by instructing them in wrestling at service hospitals.

Bowling is another sport in which the blind, after proper training, can become skilled. Our method employed is the use of a guide rail. This rail is located on the

left side of the alley and extends to the take-off point. By using this guide rail the bowler knows when he is at the take-off point and when to release the ball. Another method is for the instructor to line up the bowler with the center of the alley and instruct him in the proper number of steps to be taken before releasing the ball. The instructor should, after every ball is thrown, advise the bowler as to whether or not he is too far over to the right or left of the alley.

The blind can find much enjoyment and stimulating exercise in swimming. There are many blind persons who are outstanding swimmers. This activity is included in practically all athletic programs of schools for the blind. It is an invigorating exercise. It also instills confidence in the blind and because of this is stressed for the blind.

Track has also been added to the growing list of athletic activities for the blind. Running lanes are separated by guide wires. This makes it possible for the participants to stay in their own lanes. They can participate in several different track events.

"Shooting baskets" is a form of basketball that can be enjoyed by the blind. The participant stands about twenty feet from the basket and attempts to throw the basketball through the basket. The instructor stands under the basket and claps his hands spasmodically. This handclapping helps to guide the participant as to the location of the basket. A few small bells attached to the net ring when the ball goes through the basket.

There is also a modified form of baseball that can be played by the blind. A

large rubber ball with a few bells inside is used. The ball is rolled along the ground and the batter, guided by the sound of the bells, attempts to hit it.

Crew is another new sport that the blind have mastered. On the famed Schuylkill River in Philadelphia the people of that city enjoyed a series of shell races in which the participants were blind veterans. A six-man crew of blind navy veterans from the naval hospital there, using an instructor as coxswain, competed against a similar crew from the army Valley Forge Hospital at nearby Phoenixville. The fine exhibition of athletic ability shown by these men proved that crew racing is still another sport that can be engaged in by the blind. Because of the success of this experiment it is quite possible that many schools for the blind having access to rivers or lakes will include the sport in their athletic programs.

Roller skating and horseback riding are two other sports that the blind are now participating in and enjoying.

All of these sports help to build up the confidence, self-assurance, and morale of the blind. It helps to create a feeling of equality with those individuals who have sight, which is so important in helping the blind to live normal, self-sufficient lives.

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Arthritis

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Rather than outline an extensive classification of the arthritides I intend to discuss the more common entities, review the fundamental pathology of the two main types of joint disease and the development of certain deformities resulting from neglect or in spite of treatment. About 1934 the American Rheumatism

Association Committee developed a rather extensive classification of rheumatic diseases which is accepted and used by most medical men in the United States. In the "Primer on Arthritis" published by the American Medical Association you will find the classification mentioned, with authoritative information

on many of the arthritides. A review of the various medical treatments and an evaluation of these measures are also found in this book.

The first condition to be considered today is rheumatoid arthritis which is also known as Arthritis Deformans, infectious or infective arthritis, proliferative arthritis, and atrophic arthritis. These terms are confusing but each refers to some characteristic of the disease. Arthritis Deformans refers to the joint deformities; infectious or infective arthritis refers to the etiology; proliferative arthritis refers to proliferation of the synovial membrane; atrophic arthritis refers to bone atrophy and is the terminology favored by most roentgenologists. Some medical men believe rheumatoid arthritis is a poor term and refuse to use it. However, any term will serve the purpose, providing we all understand its meaning.

The rheumatic diseases disable more people than any other disease and rank second only to mental disease as a cause for days lost from work. In civilian life, in the army or in the Veterans Administration this group of conditions represents a most important cause of disability.

I would like to review the anatomy of the knee joint, and discuss the pathologic changes developing in such a joint during the progression of rheumatoid arthritis. As you recall, the normal knee joint is made up of the lower end of the femur and the upper end of the tibia with the patella lying anteriorly. The joint surfaces consist of the expanded ends of the bones, cancellous in type and covered with a layer of bluish white, smooth, firm hyaline cartilage. This cartilage is not radio opaque so the clear space shown on X-ray view, between the ends of the femur and the tibia is occupied by two layers of cartilage which are in apposition. These cartilages will withstand considerable pressure without sustaining permanent damage though there is some distortion of shape and thickness. When pressure is released the cartilages spring back to their original state. The cartilage contains no nerve fibers so pain does not arise in the cartilage covering the bone ends. The synovial membrane, which is modified connective tissue and not a true secreting membrane, fuses with the su-

perficial layers of cells at the periphery of the articular cartilages thus forming a sleeve surrounding the joint space. Outside the synovial membrane there are several supporting ligaments. The adjacent muscle tendons further support and stabilize the joint. The patella and the menisci are not pertinent to this discussion.

Rheumatoid arthritis is a generalized disease and not confined to the joints. The connective tissue structures anywhere in the body including the synovial membranes, tendons, ligaments, periosteum, muscle fascia and the fibrous tissue component of nerves may be involved. The symptoms of weakness, easy fatigability, weight loss, fever, muscle pain and slight aching of the joints are often the first manifestations preceding the joint changes. Bone atrophy or osteoporosis shown on X-ray examination as a decrease in bone density is frequently seen.

The pathology of this condition differs from that of degenerative joint disease. The involved joint first shows congestion of the synovial membrane. The blood vessels are dilated and filled with blood. There is a large amount of edema fluid in the thickened synovia which later proliferates and is thrown up into folds and fringes. There is usually an extravasation of fluid into the joint. The surrounding tissues also become edematous and inflamed. The fluid in the joint if large in amount separates the two layers of cartilage. If the process stops at this stage, the fluid will reabsorb; the synovial involvement will subside and the joint will apparently return to normal.

The cartilage does not contain blood vessels or nerve fibers. As the condition progresses - the proliferating synovia grows into the articular cartilage from the margin, destroying and replacing involved portions of the cartilage with vascular connective tissue known as pannus, a granulation tissue or "proud flesh." The effusion of fluid into the joint may be marked. The thickened synovia and joint effusion with the edematous periarthritic tissues produce the enlarged warm joint. On palpation the tissues feel almost "rubbery" and the thickened synovia can be "rolled" under the fingers. There is soft crepitation on motion of the joint. Weight bearing may or may not

cause severe pain. Limitation of motion may not be marked but the patient frequently tends to fix the involved distended joint in the position furnishing the greatest joint space capacity. Prolonged effusion with thickened synovia and distention of the joint may stretch the supporting connective tissue structures leading to instability of the joint. Muscle spasm during the acute stage, followed by muscle atrophy results in further loss of joint support. Prolonged flexion or other abnormal position may result in contractures of the muscles and fascia. As the pannus enlarges, more and more cartilage is destroyed. Eventually this soft pannus is converted to fibrous connective tissue and if present on opposing cartilages fibrous ankylosis takes place with limitation of motion of the involved joint. Continued activity of this process with destruction of the joint surfaces may result in bony ankylosis, frequently with deformity unless the patient has had proper management. The pannus may penetrate into the cancellous bone and form small cysts or abscess-like cavitations. Osteoporosis and muscle atrophy are also progressive. The described changes may occur in varying degrees and at different rates of progression in multiple joints. The effusions are more noticeable in the large joints.

In rheumatoid spondylitis the sacroiliac joints and the apophyseal joints of the spine are primarily involved. Calcification of the longitudinal ligaments of the spine is typical of this disease. In such cases the peripheral joints of the body may or may not be involved. This special type of the disease is commonly seen in young male adults and will be discussed in more detail.

Marked weight loss, weakness, and invalidism accompany the joint involvement. The onset of this disease may be gradual or it may be very acute with involvement of one to practically all the joints of the body. The course is marked by complete or incomplete remissions and by exacerbations. The patient with rheumatoid spondylitis may first have peripheral joints involved or the initial symptoms may be low back pain and morning stiffness. He may improve and apparently recover at any stage of the disease. Frequently the disease progresses steadily over a period of many

years until the entire spine is ankylosed.

About 80% of the patients presenting one or multiple involved joints will recover, at least for a time. For this reason it is difficult to evaluate the results of any regime or particular treatment of rheumatoid arthritis at any particular time. These patients usually have recurrences or exacerbations and so may fail to make a recovery or improve with the next attack. Thus a few more of this 80% group of "recovered patients" will develop the progressive type of the disease. Any group of patients with rheumatoid arthritis followed over a period of years will show few who do not eventually have some definite objective changes involving one or more joints.

The medical treatment of rheumatoid arthritis is varied and far from satisfactory. Many different drugs are used. The cause of the condition is unknown and there is no specific treatment. Various types of therapy have been advocated and these may be grouped as those of definite value, those of questionable value and those of no value. In this hospital the patients are placed on a "regime" or combination of various therapies rather than a single measure. Analgesic drugs, usually salicylates, are used for the relief of pain. Foci of infection are treated or eradicated, not with the idea of curing the disease but in order to eliminate any condition which might interfere with the patient's recovery. Every effort is made to improve the patient's nutritional status. Adequate protein intake is important. Vitamin supplements are furnished, especially vitamin C which is excreted in the urine in large amounts in this disease. Transfusions are given to those individuals who have severe arthritis, anemia or marked plasma protein depletion.

The regime of therapy depends on the severity of the disease. Patients with mild rheumatoid arthritis are kept active. These men must be prevented from developing an attitude of invalidism. Patients with severe rheumatoid arthritis or those who are acutely ill with less severe types of the disease are put on a modified rest program. This is not a program of bed rest and neglect. Every effort is made to encourage the patients and to allay their fears. The attitude of the physicians, nurses, attendants, physi-

cal therapists, occupational therapists and all others who come in contact with the patient must be optimistic. This does not mean that the patient is assured he will recover completely or that treatment will enable him to be "up and around in a few days." The patient with long standing disease will resent such false optimism. Rather, one must talk of the situation as it exists and of the first steps to be taken in his rehabilitation. Frequently the improved attitude of a crippled patient brought about by honest evaluation of his condition is unbelievable. The discouraged, pessimistic view of some physician or therapist has frequently robbed the patient of his last hope for recovery. Every effort is made to stimulate the patient's interest in treatment, occupational therapy or hospital activities. Our aim is to direct his interest to something besides his illness. Physical therapy, active and passive exercises and occupational therapy in addition to their therapeutic effects serve to give the patient contact with people who understand his disease and appreciate his troubles. This helps his morale tremendously.

Fever therapy, not the type previously used for gonorrheal arthritis but a milder type, consisting of elevating the patient's temperature to 101 degrees F for an hour or so twice weekly is frequently of value in those patients who are showing very slow improvement. A course consists of 6 to 8 treatments. Typhoid vaccine intravenously is sometimes used but we have almost discarded this for the mild fever therapy just described.

Large doses of vitamin D have been taken by some of the patients prior to admission. Some of the patients state they feel better while taking the drug. However, a critical evaluation shows that they seldom have objective improvement. The large doses of vitamin D mobilize calcium from the bone and elevate the serum calcium much as does parathormone. Renal calculi from increased calcium excretion and calcium deposition in the soft tissues often results. For this reason vitamin D is not prescribed for our patients.

Gold is considered by some authorities to be the most effective single therapeutic agent against rheumatoid arthritis. A few patients on my service receive gold. However, the patient is committed

to a long period of therapy once gold administration is started. A high percentage improve markedly or go into a remission after conservative management over a period of 4 to 12 weeks. I do not consider gold therapy unless the patient has definite objective findings of the disease and has shown no improvement on a good conservative regime for a period of several months. Occasional exceptions are made but such therapy should not be used unless the diagnosis is unequivocal and unless one is certain that conservative treatment will not suffice. One must determine that kidney and liver function are normal and that the blood picture is normal prior to the start of therapy. A urinalysis and a blood count is done prior to each gold injection. The patient is also questioned as to itching of the skin and soreness of the mouth. The skin and oral mucous membranes are then inspected for any evidence of inflammation. Gold thiomalate or Myochrysin is administered intramuscularly at weekly intervals. The first few test doses vary from 10 mg. up to 35 mg. of the gold salt. The regular dosage in use at present is 50 mg. of the gold salt weekly for a total of 800 to 1000 mg. The drug is then continued indefinitely in a dosage of 50 mg. every three or four weeks. About 35 to 40 percent of patients develop toxic reactions to gold and are unable to complete treatment. Serious toxic reactions are rare but do occur. The reported mortality rate is about 0.5%. This should fall to a much lower incidence now that BAL is available. Gold therapy is of no value in the treatment of rheumatoid spondylitis. X-ray therapy is probably the most effective treatment for this type of disease.

In order to illustrate the findings and to emphasize the course of this disease I would like to show a patient from Ward F2 who has rheumatoid arthritis involving the spine and the peripheral joints. Report of Case W.C.W., a 28 year old white man was admitted to Ward F2, Hines VA Hospital on 9 September, 1947, a little over two weeks ago. In February, 1942, while in the army he first had pain and swelling of both knees. He was hospitalized for about 10 days, with some improvement. During that year he had intermittent swelling, pain and stiffness of both knees but was able to remain on

duty. During 1943 he continued to have joint trouble and was hospitalized on one occasion because of an acute "stiff neck" which persisted for about one week. Late in 1944 he was again hospitalized. X-rays of his knees at that time were negative and a diagnosis of "synovitis" was made. Both knees were aspirated and casts were applied. A short time later X-rays of the low back and right hip were taken and a diagnosis of rheumatoid arthritis was made. Though he had pain in the back, hips, knees, and other joints he did fairly well in the army, carried out his duties as clerk and also did light calisthenics and exercises. His posture was good and he stood erect in spite of his discomfort.

In March, 1945, he received a C.D.D. because of his arthritis. He then started to school, worked long hours with inadequate rest and within a short time began to lose weight. He continued to have swelling of both knees. The pain and stiffness of the back and neck increased. He finished school in September, 1946. At that time he was too ill to even look for work. He rested at home for several months with no improvement. He then went to Arizona but obtained no relief from his disease. His condition has progressed steadily and while at home, lying in bed a good part of the time, he deteriorated rapidly. He has lost 55 pounds of weight. In the past 2 years he has received gold therapy, large doses of vitamin D and salicylates. Heat and massage have given him temporary relief.

On admission he weighed 95 pounds. His blood pressure was 140/90 mm. Hg. His pulse rate was 110 and temperature was 99 degrees F. Examination of the heart, lungs, and abdomen was negative. This thin emaciated man stood with his head carried forward and his shoulders slumped. He had a dorsal kyphosis, moderate flattening of the lumbar curve and slight flexion of the hips and knees. There was swelling and tenderness of both knees, ankles, elbows and wrists. Rotation of both hips was limited. He was able to extend the left knee to 160 degrees and the right knee to 170 degrees. The left elbow was fixed at 135 degrees extension. He had a frozen left shoulder with atrophy of the left deltoid muscle. He had slight forward flexion of the upper lumbar spine. On palpation

there was no tenderness over the low back. The hamstrings were tight and shortened. The hands and feet were cold, moist, and of a cyanotic hue. His chest expansion was 3 cm's.

Laboratory findings: Sedimentation rate was 18 mm. per hour. Urine normal. Blood showed a mild hypochromic anemia. Plasma proteins 6.9 gm% with albumin 3.6 gm.% and globulin 3.3 gm.%. The electrocardiogram was negative except for sinus tachycardia. Vital capacity was 2400 cc, 58% of normal.

X-ray examination of numerous joints showed the typical findings of rheumatoid arthritis.

Diagnosis: Rheumatoid arthritis of the spine and multiple peripheral joints.

Rheumatoid Spondylitis or Marie Strumpell disease is ten times more frequent in men than in women and usually starts in the sacroiliac joints. The patients commonly complain of low back pain and stiffness especially on arising in the morning. This man presents a typical example of the condition plus involvement of multiple peripheral joints. As he walks across the room I would like to have you notice the points stressed in the record. He carries his head far forward. He has a moderate dorsal kyphosis and his shoulders are slumped. He has some flattening of the lumbar curve. As he flexes the spine you see that practically all motion takes place through the upper two lumbar vertebrae. There is little motion in the lumbo sacral region. This man has better posture than the average one who develops the disease in civilian life. The soldier with undiagnosed rheumatoid spondylitis is literally forced to maintain good posture whereas the civilian does not attempt to stand erect but slumps into any position which may afford him temporary relief. As the disease progresses most patients eventually develop a rigid back or poker spine and may or may not maintain a lumbar curve. Those patients with a rigid lumbar curve may at first glance appear to have a normal back. However, on attempting forward flexion, all motion is obtained by flexion of the hip joints while the low back retains its rigid curve.

This man has shortened ham string muscles which stand out rigidly on forward flexion of the back. He has slight flexion of the hips with flexion de-

formities of both knees. He has only 3 cm's. chest expansion and his ribs posteriorly are beginning to parallel the spine. His breathing is mainly abdominal. On abducting the arms it can be seen that the left shoulder is frozen and there is little motion in the scapulohumeral joint. It is true that rheumatoid spondylitis frequently involves the hips and shoulders but frequently the disability known as "frozen shoulders" is due to soft tissue involvement rather than to joint disease. The shoulder joints seldom show true fibrous or bony fusion. The deltoid muscle atrophy is marked. Such frozen shoulders, when not due to bone fusion but to periarthritis require a long period of tedious treatment for restoration of function. Use of the finger ladder, rope and pulley exercises and the wheel sometimes result in marked improvement. Orthopedic surgeons do not always agree on the treatment of "frozen shoulders" which fail to improve on conservative management. Manipulation under anesthesia should be done only by the trained orthopedic surgeon because of the danger of fracturing the atrophic humerus. Following this procedure shoulder movements must be retained by daily passive and active motion until the atrophic deltoid muscle has regained its function.

The marked weight loss of 55 pounds and the weakness is due to the disease process. Some patients with a severe spondylitis retain their weight and look healthy while others lose weight and are ill. Possibly some of the weight loss could be prevented by feeding such patients a high protein diet during the early stages of their illness. I doubt if one could maintain normal nutritional state however. Apparently they do not utilize protein. Bone atrophy becomes marked as the condition progresses. Calcium is excreted through the kidney in larger amounts than normal, though the blood calcium level may not be elevated. This man was also given large doses of vitamin D which has a hypercalcemic effect and mobilizes calcium from the bones. It frequently leads to calcium deposition in inflamed tissue. This man has calcium deposited in soft tissue about several joints. He also has calcification of the ligaments of the spine which is the usual finding in this disease and cannot be attributed

to any effects of vitamin D. He has no evidence of renal stones which may develop because of the increased amounts of calcium and phosphorus excreted in the urine. Osteoporosis in this condition is not due to lack of calcium but to failure of the osteoblasts to form the protein fraction of bone in which the calcium and phosphorus salts are deposited. Frequently, weight loss is due to the severe pain which interferes with sleep and with proper food intake. This man did have severe pain during the period he lost weight rapidly. At present he is having little pain and has gained about five pounds weight. In spite of the pain and weight loss he did not become bedfast. He is better today, I believe, for not having been put at absolute bed rest.

The contracture of the knees may respond to traction since motion is not greatly limited. However, marked contracture of the knee joint treated by ordinary traction may result in partial posterior subluxation of the tibia on the lower end of the femur. Posterior capsulotomy may be required to correct such contractures.

Spasm or contracture of the ham string muscles, as seen in this patient, may cause pain and disability. Forward flexion of the spine or even other movements of the low back are restricted by the shortened muscles, which originating from the ischial tuberosities tend to rotate the iliac bones posteriorly thus "unlocking" the sacroiliac joints and causing pain which frequently radiates into the buttocks or down the posterior aspect of the thighs. This mechanism is the cause of pain in the straight leg raising test. The result of tight ham string muscles can be readily demonstrated by comparing flexion of the back in the standing and sitting positions. When sitting, the ham strings are relaxed and do not tend to "unlock" the sacroiliac joints. Forward flexion while limited by arthritis of the spine is accomplished with little pain. Stretching of the ham string muscles frequently results in amelioration of symptoms. The patient should stretch these muscles actively and within the limits of tolerance though obviously the exercises will cause pain. Eventually, with fusion of the sacroiliac joints the pain subsides.

This man has slumping of the shoul-

ders with flattening of the upper chest with only 3 cm's. chest expansion. The 44 small articulations between the ribs and spine become involved and movement, especially of the upper chest, is limited. Kyphosis or forward flexion of the upper back further decreases chest capacity. The ribs tend to parallel the spine. Breathing is mainly diaphragmatic or abdominal in type. As you notice, the abdomen protrudes with each inspiration. In later years with loss of muscle tone, sagging of the abdominal wall occurs. This leads to visceroptosis, lowering of the diaphragm and traction on the lungs with development of pulmonary emphysema. Eventually right heart involvement with failure may occur.

How can the posture and chest expansion be maintained or improved? Obviously, if the disease is far advanced and there is a bamboo spine, little can be accomplished by exercises or physical therapy. On the other hand, if deformities are not due to actual bone fusion or if there are no deformities, much can be done. Our aims should be to correct poor posture or maintain good posture and to regain or maintain chest expansion.

Several times daily the patient should while lying on a firm bed, flat on his back, without a pillow if possible, forcing his shoulders back to the bed, placing his hands behind his head with his elbow in contact with the bed, take a number of deep breaths. The lower chest is lifted with each inspiration. The patient may not be able to extend the upper back and neck sufficiently to do without a pillow under the head at first. Eventually the patient may be able to lie without a pillow or even place a small pillow or folded towel between the shoulder blades to further extend the upper back when taking the deep breathing exercises. The patient may hook his fingers under the lower ribs and pull out with each inspiration to further increase movement of the thoracic cage. The position described also prevents or reduces the incidence of frozen shoulders. If all bed patients placed their hands under their heads, as described, the great majority of shoulder disabilities seen in bed fast patients would be prevented.

By conscientious work at deep breathing exercises some of these patients can increase their chest expansion a good deal. They are instructed to take ten

deep breaths every hour on the hour during waking hours in addition to their supervised exercises. The patient who works only when in the gymnasium or when supervised will not obtain maximum results. Real progress depends on the work he is willing to do on his own initiative. The outpatient who returns unimproved usually gives a story of exercising for a few days and then gradually discontinuing exercises for one reason or another. Obviously, one cannot make athletes of these patients so exercises should not be overdone. The patient's incentive to improve is very important. Some of the older men who have not been successful in their life work and some of the younger men who have not had a real opportunity to make their mark after discharge from the service, refuse or lack the will to make a real effort toward recovery. They take refuge in illness and are content to be cripples. Such individuals are real problems and their rehabilitation is very difficult. On the other hand, the man who is anxious to recover and leave the hospital often makes rapid progress.

The patient with degenerative joint disease, also called osteoarthritis or hypertrophic arthritis presents a different problem. The pathology of this type of joint disease is different from that of rheumatoid arthritis. As the individual ages the cartilage of the joint is subjected to injuries, some severe and others slight. The summation of these injuries over the years leads to fibrillation or fraying, erosion or thinning, pitting and eventually to changes amounting to destruction of the articular cartilages. The underlying bone becomes hardened or eburnated. The pull on the periosteal attachments of ligaments and fibrous tissues as well as trauma to adjacent bone margins by contact results in the development of osteophytes or spurs and overgrowth of bone at the joint margins. These changes can be considered as due to "wear and tear" incident to activity. They vary in different individuals depending on trauma sustained and also on the character of cartilage inherited. The joint symptoms invariably are aggravated by activity and relieved by rest and physical therapy. Orthopedic appliances are sometimes of value. It is essential that the obese patient reduce his body weight if the weight bearing joints or

back are involved. The average patient must accept his disability and limit his activity to that which can be tolerated without excessive pain. External heat, diathermy, and massage may give temporary relief but are not curative. Development of muscle strength may aid in stabilizing a joint but exercises of the joints in general are of little value. Limitation of activities with elimination of those causing pain plus salicylates and physical therapy for temporary relief are the basis of treatment. Removal of free bodies in an involved joint or even fusion of a single painful joint are orthopedic procedures occasionally utilized. Reduction of body weight may aid greatly in increasing the patient's tolerance to activity.

The treatment of the acute arthritides such as rheumatic fever, meningococcemia, acute gonorrheal arthritis and gouty arthritis is primarily medical. When these entities are recognized early and properly treated they do not present such difficult problems for the physical therapists. Chronic gouty arthritis of long duration presents much the same problem as does degenerative arthritis.

The underlying pathological changes in the types of arthritis discussed explains the difference in treatment used in the conditions.

Question: Should the patient with shoulder pain be encouraged to exercise the shoulder in spite of the pain?

Dr. Montgomery: The patient with acute subdeltoid bursitis should not have active exercises prescribed immediately and for the first few days passive exercises can be omitted. However, if the shoulder is allowed to remain immobile for any length of time he may develop a frozen shoulder. Therefore, it is best, a few days after the acute onset, to insist on movement of the joint. Frequently the shoulder can be flexed, that is the elbow can be elevated anteriorly and when at the level of the shoulder, the head of the humerus can be externally rotated and in this position further movement of the shoulder joint may not be excruciatingly painful. Application of external heat and administration of analgesic drugs just prior to the exercises may alleviate the pain sufficiently to allow movement of the joint. X-ray therapy is of value in such acute conditions.

Irrigations of the bursa or infiltration of the area with 1% procaine hydrochloride will often relieve pain so that movements can be carried out immediately. In the later stages, exercises should be carried out in spite of pain.

Question: Do you advise the patient with rheumatoid arthritis to remain ambulatory?

Dr. Montgomery: Yes. There are exceptions as in the case of involvement of multiple weight bearing joints or the severely ill patient with high fever but in general these patients deteriorate more rapidly when they remain in bed throughout the day.

Question: Did the patient you presented have typical changes in the hands? They appeared to be in good shape.

Dr. Montgomery: There is typical fusiform swelling of the proximal interphalangeal joints of the hands but the fingers are not markedly deformed or painful. He does not have the ulnar deviation frequently seen in the later stages of the disease. This deformity can frequently be prevented, or if mild, corrected by the use of proper night splints.

Question: Can one do damage to an acutely inflamed joint by having the patient exercise the joint even when it causes him much pain?

Dr. Montgomery: I do not believe that active exercises of very acutely inflamed joints is proper treatment. Passive movement through a full range of motion or through a range possible without the use of much force once or twice daily is very important. If the condition has been present for some time the patient may have contractures when you first see him. In such a case passive motion through a very limited range may be possible. Nothing is to be gained by forceful manipulation of an acutely inflamed painful joint. Of course one must evaluate the patient's complaints. Some will bear severe pain whereas others will cry out with the first twinge of pain.

Question: What do you do for the patients with acute pain who are unrelieved by salicylates?

Dr. Montgomery: During the acute stage of the disease, posterior molded splints will usually allow relaxation of the muscles and reduce the pain to a point where salicylates or APC capsules are effective. These patients should not

receive morphine. Occasionally one sees patients who have been given small amounts of codeine or Demerol but pain which requires morphine or these other narcotics for relief should not be considered as arthritic in nature. The patient should be examined for evidence of malignancy and one should attempt to evaluate the patient's tolerance to pain. Pain which persists unabated, day and night, with no relief and no change in intensity is usually of a functional nature. Even the pain of bone metastases varies from time to time. The localization and character of the pain often give one a hint as to its nature. Pain of psychogenic rheumatism is diffuse, poorly localized, often described as an unbearable type of numbness, burning or as "impossible to describe." The attitude of the patient and the detailed description of his suffering frequently indicate the nature of the complaint. Anxiety of course may be present but in the patient with conversion hysteria the lack of associated anxiety and the placid acceptance of his terrible affliction are characteristics which are important in making the diagnosis.

Question: Do you recommend the administration of vitamin D during remissions of rheumatoid arthritis?

Dr. Montgomery: No. Vitamin D has two actions depending on the dose administered. The antirachitic action which is obtained with small doses of the vitamin is beneficial. There is no argument about its use in small doses. The hypercalcemic action, that is the action by which the level of calcium in the blood is elevated above normal, is due to large

doses of the vitamin. The mobilization of calcium from the bones, much like that due to parathormone leads to an increased blood level and increased excretion of calcium in the urine. This process has been reported to lead to progressive osteoporosis, renal calculus formation, renal calcinosis and pathological soft tissue calcification. Certain authorities have stated that its dangers have been over emphasized but personally I do not prescribe it.

Question: In cases of subacute rheumatoid arthritis do you recommend heat therapy?

Dr. Montgomery: Yes, I do. However it is common experience that diathermy aggravates rheumatoid arthritis. Whirlpool baths will frequently aggravate the joint symptoms of a patient with subsiding acute rheumatoid arthritis. Hot wet packs to the joints for several hours daily are of value. Administration of external heat or hot baths with development of fever from 100 degrees F to 101 degrees F for an hour or so are frequently beneficial. At Ashburn General Hospital, one of the arthritis centers of the army, therapeutic tubs were used to give mild fever therapy, with good results.

Question: What about the use of ultra violet light?

Dr. Montgomery: It might be of use in treating certain patients who have psoriasis and rheumatoid arthritis. It has been observed in certain cases that with subsidence of the psoriatic skin lesions or nail lesions the arthritis improves. Ultra violet light is of value in the treatment of the psoriatic skin lesions.

Corrective Therapy on the Surgical Wards

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Corrective Therapy at the Bronx Veterans Administration Hospital has had a program for early ambulation in post-operative surgery for the past six months under the direction of the doctors of Physical Medicine Rehabilitation.

Corrective Therapy begins in the recovery room where the patients are

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taken directly after surgery. In the recovery room, the corrective therapist initiates treating the patient to prevent post-operative complications. Pulmonary complications constitute one of the important problems in surgery. Respiratory efficiency is often considerably impaired by an abdominal operation. At the Mas-

sachusetts General Hospital, extensive studies of vital capacity were made on surgical patients in the recumbent position and it was established that after such surgery, breathing is restricted and shallow. Further studies by Haldane, Meakins, and Priestly,¹ proved experimentally that the recumbent position is accompanied by changes in respiration that are not conducive to optimum breathing. Post-operative exercises and early ambulation will return the patient much more quickly to a state of normal pulmonary ventilation.

The far reaching effects of a physiologic regime of surgical management particularly of early exercise and ambulation in preventing other post-operative complications are as evident and striking as in the prevention of pulmonary complications. Complications related to the circulatory system such as surgical shock, thrombosis, thrombophlebitis, and embolism, are all influenced by circulatory disturbances initiated by surgical operation. With post-operative exercise a few hours after surgery, surgical shock is rare.²

After operation, the tendency for the blood to coagulate is increased. Fear, apprehension, nervous strain and hemorrhage are contributing factors to the coagulation of the blood and the formation of thrombi. Other factors which also contribute to the formation of thrombi are stagnant venous circulation and mechanical pressure on collapsed vessels on the legs caused by lack of muscular tone and poor circulation. Active exercises for the extremities and ambulation stimulate circulation in the legs. There is increasing recognition that immobilization in bed after surgery is the most important factor in the development of thrombosis.^{3,4} Dr. Leithauser in his book on early ambulation states that the patient who has respiratory and circulatory deficiency as a result of surgical trauma, will improve more promptly if these changes are counteracted by carefully prescribed exercises.²

The following program has been established and approved at the Bronx Veterans Administration Hospital in Corrective Therapy for post-operative surgical cases:

- I. Major abdominal surgery such as gastrectomies, appendectomies, co-

lostomies, cholecystectomies, etc.

Precaution:

No trunk motion and no resistive exercises to abdominal wall as long as surgical incision is not healed completely or as long as drain is present.

Exercises:

1. Passive, active and later resistive exercises to all four extremities.
2. Passive hip flexion to preserve range of motion.
3. Breathing exercises, chest breathing, abdominal breathing.

II. Herniorrhaphies

Precaution:

No resistive exercises to abdominals until wound is healed.

Exercises:

1. Breathing exercises, chest and abdominal.
2. General active and moderate resistive exercises to all four extremities.
3. Abdominal exercises (after wound is healed).
 - a. Forward flexion of hips with knees straight in sidelying position and lateral trunk bending in supine position.
 - b. Active head, shoulder, trunk raising from supine position.
 - c. Same as "b" with moderate resistance given.
 - d. Instruction in proper weight lifting given in Corrective Therapy clinic.

III. Pilonidal Cysts and Hemorrhoidectomies

Precautions:

Exercises in prone or standing position only. Do not put strain or stress on operative area. No hip motion.

Exercises:

1. Active and active resistive to upper arms.
2. Hyperextension of upper back only.
3. Lateral trunk motion in prone position.
4. Active knee flexion and extension.
5. Active ankle and toe flexion and extension.

Exercises for home (Pilonidal Cyst)

1. Gluteal setting.
2. Active hip flexion in supine position with knee flexed.

3. Hip extension in prone position with knee flexed.
4. Internal rotation of hip.

IV. Above Knee and Below Knee Amputations

Precaution:

No stump toughening or resistive exercises to flexor muscles (hip or knee flexors).

Exercises: (in progression)

1. Instruction in proper bed posture.
2. Active exercises to adduction of the thigh to above knee and below knee amputee.
3. Gluteal setting and adductor setting to above knee amputee.
4. Quadriceps setting to below knee amputee.
5. Later active and resistive exercises to adductors and hip extensors carried out in Corrective Therapy clinic to above knee amputee.
6. Later active and resistive exercises to quadriceps in Corrective Therapy clinic to below knee amputee.

GRADING OF EXERCISES

Mild

1. All passive movements, 5-10 repetitions.
2. Active movements without resistance, 10 repetitions.

Moderate

1. Active movements without resistance up to 10 repetitions.
2. Active movements with slight resistance up to 10 repetitions.

Strenuous

1. Active movements with moderate resistance up to 10 repetitions.

BIBLIOGRAPHY

1. Haldane, J. S.; Meakins, J. C., and Priestly, J. G.—"The Effects of Shallow Breathing"—*Journal of Physiology*—May 20, 1919—Volume 52—Pages 433-463.
2. Leithauser, T.—"Early Ambulation"—1946—Charles C. Thomas, Publisher—Springfield, Illinois.
3. Hunter, W. C.; Snieden, V. D.; Robertson, T. D., and Snyder, G. A. C.—"Thrombosis of the Deep Veins of the Leg"—*Archives of Internal Medicine*—July, 1941—Volume 68—Pages 1-17.
4. Doch, William—"Evil Sequelae of Complete Bed Rest"—*Journal of the American Medical Association*—August 19, 1941—Pages 1083-1085.

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Reintegrative Research Program

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Recently when Dr. Louis F. Verdel, Manager of the Veterans Administration Hospital, Northport, Long Island, New York, asked me as Chief of the Service to furnish him with a short preliminary report of the Service's progress, preparation of a report was begun.

Entirely independent of Dr. Verdel's request, but following shortly thereafter, a request was received from the Chief of the Corrective Therapy Section for a constructive opinion (if any success had been forthcoming) as to the value of the contributions his Department had been making in the over-all efforts of the Service. In view of the latter then, it was decided after some consideration, that a consolidated report so prepared as to furnish the information asked in each instance, would be interesting.

In November, 1947, on the expressed wishes of the Hospital Manager that a

new Service be established for the explicit purpose of bringing together as a group certain patients throughout the hospital whom he felt to be in need of a specially planned reintegrative treatment program, the now active Reintegrative Research Service was organized and formed.

It had long been his observation, both as a staff physician and later as chief physician or hospital director (in which position the opportunity to view the overall needs of the patient population of the hospital has been far better than comes to the average staff physician), that a large number of patients might well be prevented from becoming life-long custodial cases if only some special attention could be given to their individual needs. This was because he felt that in spite of the fact that among those patients who to any of the standard acceptable thera-

pies given them during their early residency in the hospital on the intensive treatment service, many of them still have from all clinical evidence relatively good prognostic outlooks. This was based upon the long since established fact that an appreciably large percentage of patients admitted to the hospital suffering with Schizophrenia, actually do not regress beyond a point where at least some contact cannot be made with them for a far longer time than may seem apparent on the usual observation and that what may well seem a state of deterioration is far more likely to be that of regression only and that this regression does not become a deteriorative process actually for several years. It was due justification therefore for assuming that any intensified effort that might be suggested for saving at least some of these cases from the inevitable chronic deterioration with its life-long need for hospital care and any additional expense incurred in establishing the Service to make such an effort now would be slight compared to the benefits achieved.

Most of the patients in question were to some extent already on a regime not entirely different from the treatment program planned for the new Service. However, because of the situation previously made unavoidable by the large number of patients it is always imperative that a hospital of this size receive, they were being cared for throughout the other Services of the hospital wherever bed accommodations were found for them as they came from the Acute Intensive Treatment Service. As would follow from the latter, these patients were being cared for along with many patients whose illnesses were of such duration that less response to any regime could be expected. Therefore, physicians in charge of the various wards of the hospital where these patients were being housed found it necessary to do the best under the circumstances for these more prognostically hopeful cases, while at the same time rendering attention to their already heavy case load of patients in need of an entirely different kind of attention. The new Service began then with a plan of treatment built more or less simply on the assumption that through a concentration of these more

hopeful cases into one group and by careful planning and timing, making maximum use of the splendid already available facilities of the hospital (the details of which may be seen by reading the attached program, the task set for the program would be more easily accomplished. Details of the uses that have been made of the facilities of the several special departments active in the treatment program have not been gone into here, with the exception of the Corrective Therapy Section which has been chosen as particularly exemplary because each department, having its own definite functional purpose, would require a lengthy report of its activities to do full justice to its efforts and such would hardly be within the scope of this paper. It will suffice beyond that to say that it was through the maximum use of all of them that we were able to devise a time-consuming though interesting program that would fill the needs of the particular patients in question.

It will be noted, if reference is made to the accompanying chart, that it is the actual schedule followed by the patients on the Service daily, five days a week and includes the time interval devoted to each of the four periods per day. Further, it will be seen from the actual plan of the program (though not so stated on the chart) that the 106 patients making up the Service and therefore on the treatment regime, have been divided into 4 groups of approximately the same number. Roughly, though not always entirely possible, some effort has been made to arrange the groups according to a graduated behavior rating, downward. It would follow without saying therefore that group I is composed of patients with relatively better behavior and co-operation ratings. As would probably be expected, shifts have to be made constantly from one group to another. In any event, however, if a patient must be transferred from one group to another, he continues to be kept just the same on the treatment program, only having to attend the different sessions with another group at another time. To digress slightly, one interesting observation that has been made and might well have been predicted knowing that one was dealing with groups made up entirely of schizo-

phrenics, there is little or no inter-group competition, Schizophrenics being notoriously devoid of the empathy necessary for any concerted group effort unless directed. However, individual patients showing improvement, frequently have asked for transfer to another group.

To proceed then with our example, the contribution being made by the Corrective Therapy Section, the following are the planned activities administered by the Corrective Therapy Section personnel:

Vigorous reconditioning exercises; medicine ball and apparatus exercises; remedial exercises and postural exercises where prescribed. The foregoing are given in one particular gymnasium best suited for this and in turn each group of patients is taken through the various exercises described. In a differently located gymnasium, such informal activities as may from time to time be arranged by the Corrective Therapy Chief and the Ward Physician, are carried out. Here also use of the punching bags (both light and heavy) is encouraged in an effort to relieve some of the aggressive tendencies and tensions displayed by many of the patients as characteristic of their illness. Ping pong and miniature bowling is played to encourage the spirit of competition. There are numerous forms of wall apparatus for those not able to enter into competitive activities; also passive games and habit training. At still a third location, resocialization activities, under the direction of the Corrective Therapy Section with the Gray Ladies of the American Red Cross as assistants, are given. Here also, habit training along the lines necessary for participation in the resocialization functions is promoted. As weather permits, outdoor activities with the instructors are held and the fundamentals of different games of sport are given and at other times, hikes about the reservation with appropriate instruction as to locale and its geography. Any of the activities mentioned so far are both supplemented by and replaced as the occasion may warrant, i. e., bowling in the regular bowling alleys and swimming in the hospital swimming pool.

It may very easily be seen from the brief account of the activities offered to the patients by the Corrective Therapy

Section that there is considerable variety and that much of the improvement shown by all the patients in general and particularly by individual patients has resulted to a large degree from the very important part that the Corrective Therapy Section has played in the over-all effort, since its inception.

Before any attempt is made to give any statistical information about the new Service, it would appear best to explain at this point the method by which it was hoped we could successfully choose those patients best suited for transfer to the new Service. The first criterion, but the only one we were able to adhere to without exception, was that all the patients were to be veterans of World War II. It was felt that in this way the age factor, as far as it goes prognostically, would be automatically settled because the general age range of World War II veterans is such that advancing age would not enter as an impediment to any patient's response to the treatment program. Secondly it was felt that by so choosing each patient picked would prove a better candidate for response to the program if the length of his illness and residency in the hospital was such as to make the time factor in his illness in his favor, i. e., that he had not been ill beyond four years and at the outside, five years; any time beyond that being arbitrarily considered unfavorable prognostically, per se. This was not difficult to follow out as the actual time, even since the early war years was only a little beyond the maximum, the greater majority of patients received in the hospital having been admitted during the latter war years or after. Thirdly, an attempt was made to give some attention (though this was not always possible) to the pre-psychotic personality make-up of each patient. Lastly, further effort was made to see that none would be chosen in whom plainly irreversible deterioration had taken place.

In choosing only patients who fall into a category somewhat sharply delineated by the foregoing, the seemingly justifiable criticism might be offered that by choosing only prognostically hopeful cases any success which would likely follow could not be rightfully attributed to the planned effort as a new offering. Though in substance such a statement

might seem true, it was asked of those concerned that they keep in mind the fact that although it is a well known tenet that many patients may hold a relatively good prognosis even after some length of time in the hospital, it has not always been possible to make use of that fact and an intensified treatment program continued for them beyond the usual intensive treatment carried on during their early residencies in the hospital. Simply stated, it should be remembered then that the planned treatment program would offer something to patients falling into an in-between group as an all-out effort to prevent them from passing over (before their time) into a group whose chances of being rehabilitated or reintegrated has become lessened through the passage of time. It was the opinion of all who were to work on the new project that if (when the time came for an evaluation of the results of such a concerted effort to reintegrate those patients already described as falling into a sort of in-between prognostic classification) the evaluation was to be accurate and prove useful in future therapeutic planning, only a limited number of patients should make up such a group. In this way it was felt the endeavor could be raised to more nearly a research level and thereby proved. Although the concept from which the idea of the establishment of the Service actually grew had its basis in the observation most every psychiatrist who has worked for a length of time in any large institution has at some time or another no doubt expressed and thought to be unquestionably factual, it cannot be said merely because such an opinion is generally held, i. e., that through an all-out effort whereby a patient is given constant attention and kept on a prolonged stimulating and time-occupying program in contrast to being relegated to the inactivity of a so-called back ward, he will deteriorate less or perhaps can be prevented from doing so, that such an opinion is necessarily correct. It had never been clinically proven on an experimental basis by comparison with a control group not cared for in a like manner.

Originally it was planned to select about 75 patients for this Service. To completely separate the patients on this Service from any other group was

deemed primarily essential, if our efforts at closely observing them as a distinct group on a special regime was to prove successful. Unfortunately, to accomplish the latter with only 75 patients, would have meant actually reducing the total bed capacity of the hospital, so although we were able to house the patients as a distinct group, hospital conditions forced us to accept 106 patients instead of the 75 originally planned. When the program was launched early in December, 1947, the group consisted of 106 patients occupying one floor of one of the hospital buildings. The group of 106 patients was felt from the start to be actually a bit too large from several standpoints, not the least of which was the number of personnel that we were able to have assigned to the Service. Though it had been actually planned and hoped that we could have a better proportion of personnel to the number of patients to be cared for than is generally true of the ratio of personnel to patients elsewhere in the hospital, we were unable to have the number we wished and this proved to be slightly a hindrance from the beginning. In spite of that, however, the treatment program was not curtailed by making alterations in it and once launched has been carried on with but minor changes that have been effected at such times where observation of any certain patient's unusual needs made it imperative. Major changes have been avoided insofar as possible, not because weaknesses in the program as originally planned may not be there, but because accurate evaluation of results would become increasingly difficult in proportion to the changes made. Perhaps if for no other reasons, the attempt being made, if not confused by frequent changes from the original purpose, may teach us at least what not to do by demonstrating in a positive manner that certain types of care rendered patients is of no therapeutic value and therefore a waste of time and effort. Even from such a negative result, much should be learned in our future planning of the care to be rendered the mentally ill, though naturally it was hoped no such negative conclusion will have to be arrived at and so far (though the time has been much too short to give the final answer) it appears that the results will be far more

gratifying toward the constructive side in establishing that certain types of care along therapeutic lines, given such a group of patients, is of definite help in bringing about their reintegration. It was because our planned effort was directed strictly toward the accomplishment of the latter that in selecting a name for the Service, now an integral part of the hospital organization, the following title—"Reintegrative Research Service"—was suggested and is the name by which the Service is known unofficially in the hospital.

Although as previously stated it is felt that the time has not yet arrived for a final evaluation of the results of the effort herein reported, a preliminary check-up of the number of patients who have been able to leave the hospital since the inception of the program and some prognostic projection of what future results might be expected from the amount of improvement shown by the individual patients, have been made. The results shown by the exact figures that follow and also by the accompanying chart are certainly satisfactory enough by comparison to warrant doubling the size of the Service, which will take place soon and the addition of course of ample personnel. Of 106 patients that were on the Service, 11 patients have left the hospital on trial visit. One patient has had to return of this 11, though not as a result of his failure to adjust but because of an unusually bad social situation in the home which could not be corrected. Another 6 patients are (as of June 13, 1948) to be brought before the Staff for immediate trial visit. An additional six patients await going before the Staff in the very near future and 6 additional ones show sufficient improvement to warrant consideration of their presentation before the Staff to determine the advisability of placing them on trial visit, when some slightly better solution for the Social problems in the homes have been surmounted. There are 39 patients presenting definite possibilities of leaving the hospital as a result of their improvement since being on the Service, after they have been on the program for some short while longer. There are an additional 17 patients who may go on to further improvement, having already shown sufficient improvement to

justify the statement, since being on the program. Unfortunately 26 additional patients have had to be cared for in whom regression or deterioration seems to have made their response to the program impossible. What seems to be an error here in the totals is not an actual one. It will be noted that of the 106 patients, the total with which the program was started, there are only 100 patients remaining on the Service. That is because of the 11 patients who have gone on trial visit only 5 have been replaced by transfers in from other wards at the time this report was prepared.

It might be well to mention at this point one fact which does not seem irrelevant. This concerns the ever present shortage of personnel participating in the program and a particular need for a better ratio between the number of Therapists and the number of patients they must handle.

To Summarize:

A new Service was established as an integral part of the hospital here for the purpose of caring for and treating a definite category of patients. This definite but not too closely delineated group prognostically comes midway between those patients newly admitted to the hospital and under active intensive treatment and those patients under care on the continuous treatment service, the length of whose illness has rendered the possibility of their being rehabilitated as unlikely. The basic thought behind the actual construction of the treatment program herein presented, was that every effort be made to establish a treatment program as active and interesting to the patients as their illnesses would allow, and most important of all that it will always be time-consuming in such a manner as to adequately hold the patients constantly in contact with a reality situation by making every effort to keep them off the wards as much as possible during each day. The accomplishment of the latter, it was felt, would prevent the all too commonly seen idleness of patients with nothing to do, observed on many hospital wards. Idleness being beyond question the surest road to regression and deterioration a patient can take in his constant flight and withdrawal into the oblivion of fantasy with its exclusion of reality.

**Present Status Reintegrative Research
Service****June 13, 1948**

11—On trial visit at present. This number is not included in the totals below.

6—Patients are to be brought before the Staff for consideration for trial visit in the relatively immediate future.

6—Patients will be considered for presentation before the Staff for decision as to the advisability of placement on trial visit in the rather near future.

6—Patients show sufficient possibility to warrant considering their cases for presentation before the Staff for determining the advisability of placing them on trial visit. Here all cases await the satisfactory solution of social problems that so far have not been surmounted.

18—Total of patients for consideration for trial visit immediate—near—and not too distant future.

39—Patients present definite possibility because they are not felt to have regressed or deteriorated to an irreversible degree. The possibilities these patients have of leaving the hospital and making at least a minimal adequate adjustment depend more or less on future response to Rx.

17—Present some possibility in each case of a minimum adequate adjustment level for getting along outside the hospital being reached, but only after extensive additional Rx.

74—Total.

26—Little likelihood can be held out for any of this number of patients on the Service ever being able to leave the hospital.

100—Total for the Service.

Time	MONDAY				TUESDAY				WEDNESDAY				THURSDAY				FRIDAY			
GROUP	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
8:30 to 10:00	OT MR	CPR (a)	CPR (b)	Ath	OT MR	CPR (a)	CPR (b)	Ath	OT MR	CPR (a)	CPR (b)	Ath	OT MR	CPR (a)	CPR (b)	Ath	OT MR	CPR (a)	CPR (b)	Ath
10:00 to 11:30	CPR (a)	OT MR	Ath	CPR (b)	CPR (b)	OT MR	Ath	Lib	CPR (a)	OT MR	Ath	CPR (b)	CPR (a)	OT MR	Ath	CPR (b)	CPR (a)	OT MR	Ath	Grp Psy
11:30 to 1:00	Noon Meal				Noon Meal and Shaving				Noon Meal				Noon Meal and Shaving				Noon Meal			
1:00 to 2:30	Rec	CPR (b)	OT MR	CPR (a)	Lib	Rec	OT MR	CPR (b)	Ath	Rec	OT MR	CPR (a)	Ath	Lib	OT MR	Rec	Ath	CPR (b)	OT MR	(a) CPR
2:30 to 4:00	Grp Psy	Ath	Rec	OT MR	CPR (a)	Grp Psy	Rec	OT MR	CPR (b)	Ath	Lib	OT MR	Rec	Ath	Grp Psy	OT MR	CPR (b)	Ath	Rec	OT MR
4:00 to 6:00	Evening Meal				Evening Meal and Shaving				Evening Meal				Evening Meal and Shaving				Evening Meal			
6:00 to 7:00	Bathing				Movies				Dance				Bathing				Movies			
7:00 to 8:00	Bathing				Movies				Dance				Bathing				Movies			
8:00 to 9:00	Bathing				Movies				Dance				Bathing				Movies			

Saturday: will be devoted to bathing, shaving and ward hygiene. Selected groups will participate in Special Service spectator activities outside the hospital and selected recreation activities inside the hospital.

Sunday: will be devoted to preparation for welcoming visitors.

Holidays:

LEGEND: OT - Occupational Therapy; MR - Medical Retraining; CPR - Corrective Therapy; Rec - Recreation;
Grp Psy - Group Psychotherapy, Ath - Athletics; Lib - Library

